

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Shi, et al.

Title: **SYSTEM AND SOFTWARE FOR DATA COLLECTION AND
PROCESS CONTROL IN SEMICONDUCTOR MANUFACTURING
AND METHOD THEREOF**

Application No.: 09/905,220 Filed: July 12, 2001

Examiner: Alexander J. Kosowski Group Art Unit: 2125

Atty. Docket No.: 1458.TT4869 NOA Date: n/a

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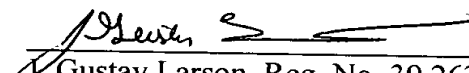
SUBMISSION OF NEW FORMAL DRAWINGSTransmitted herewith are twenty-two (22) sheets of new formal drawings containing
Figs. 1; 2; 3; 4A & 4B; 5A & 5B; 6-20, respectively.

The new drawings correct informalities.

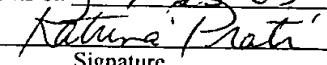
Respectfully submitted,

Date

7-23-03


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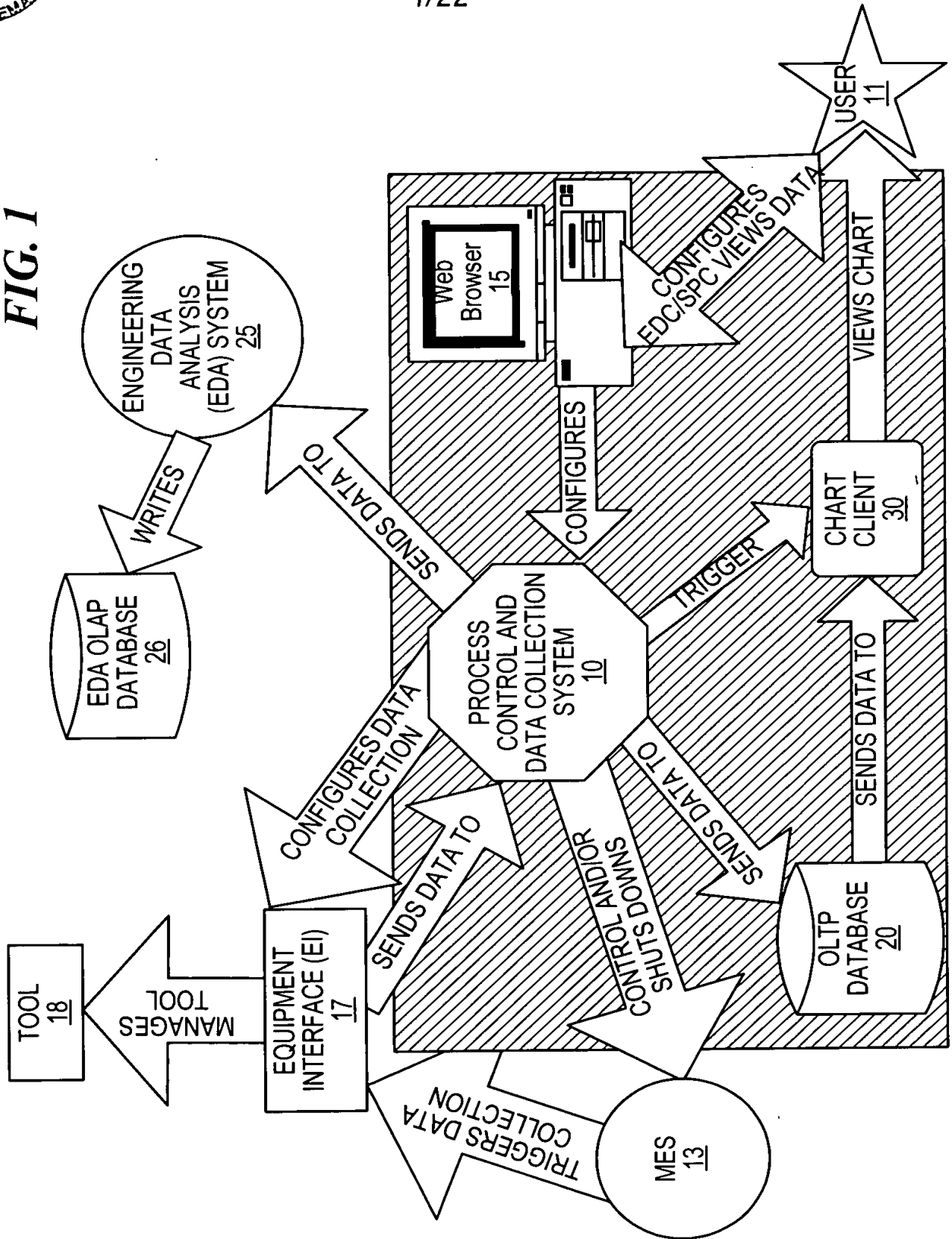
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FIG. 1





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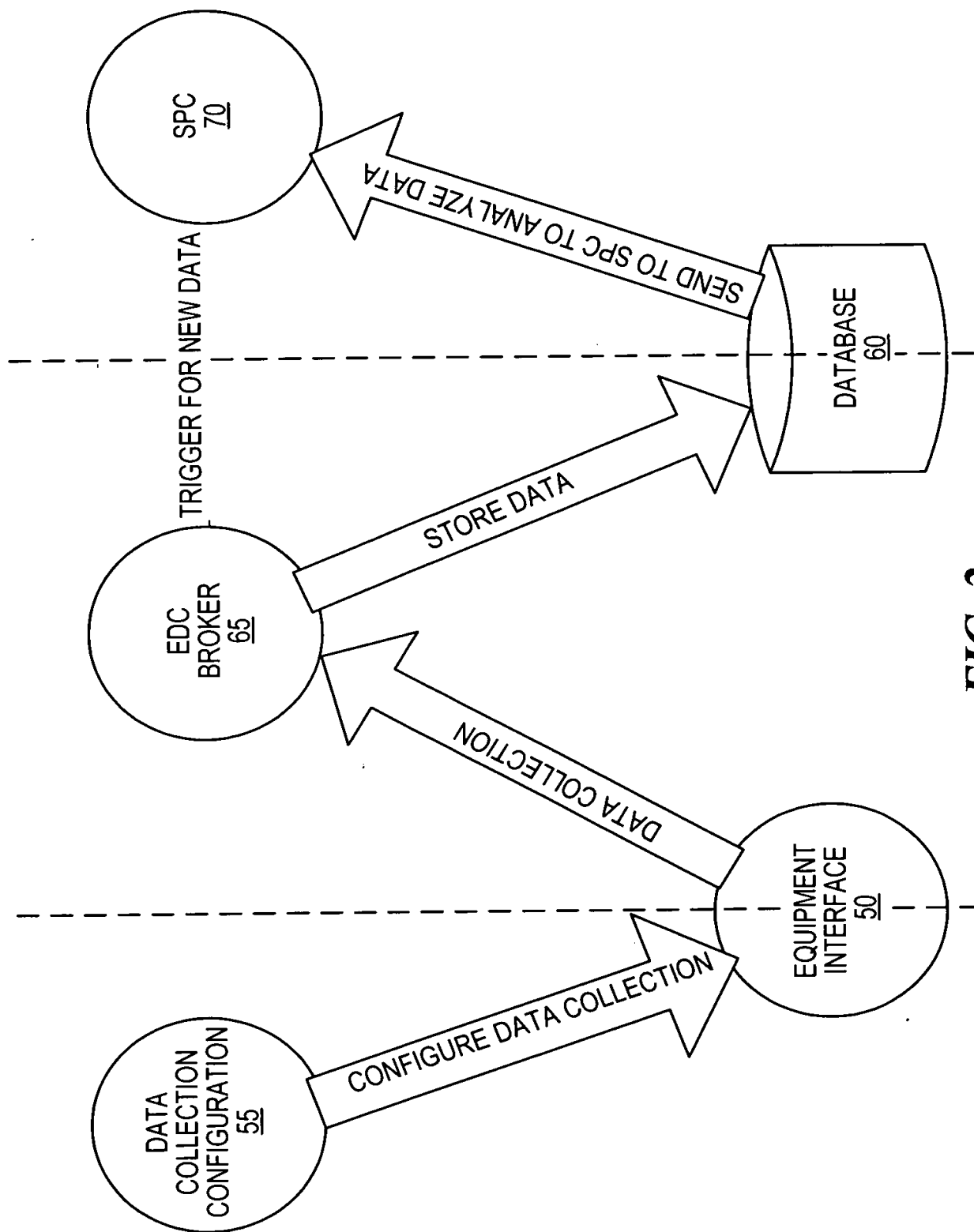
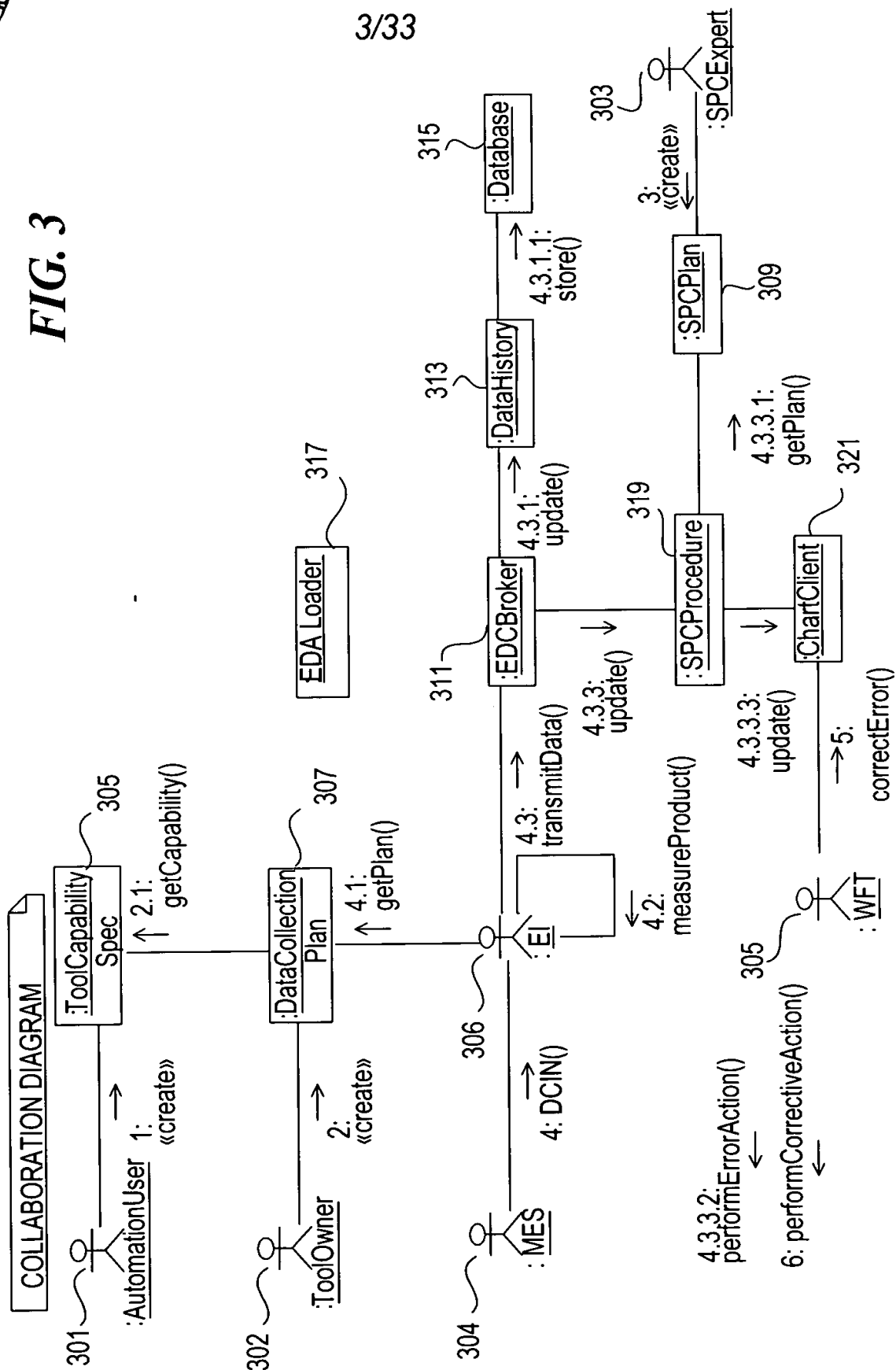


FIG. 2

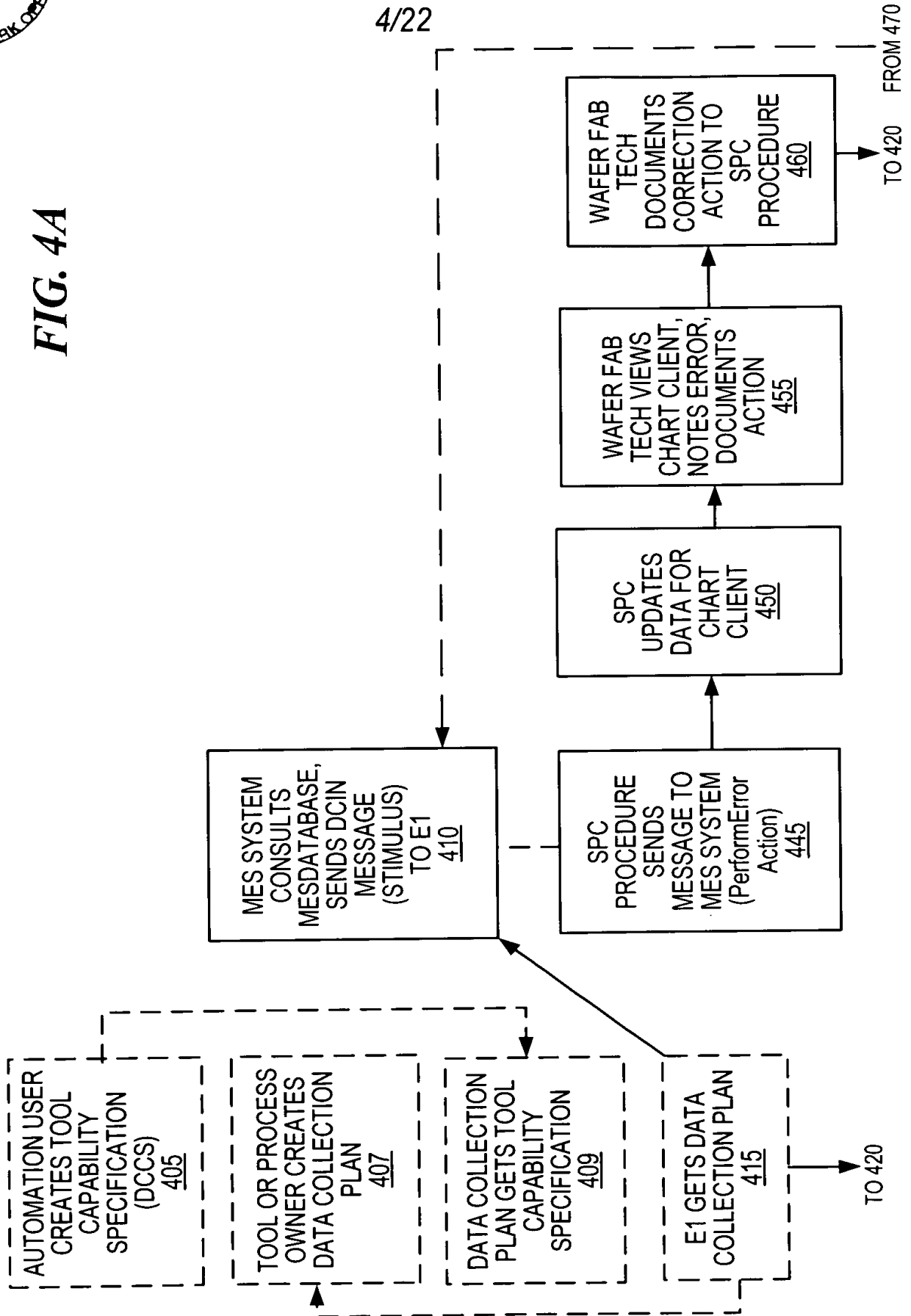
FIG. 3





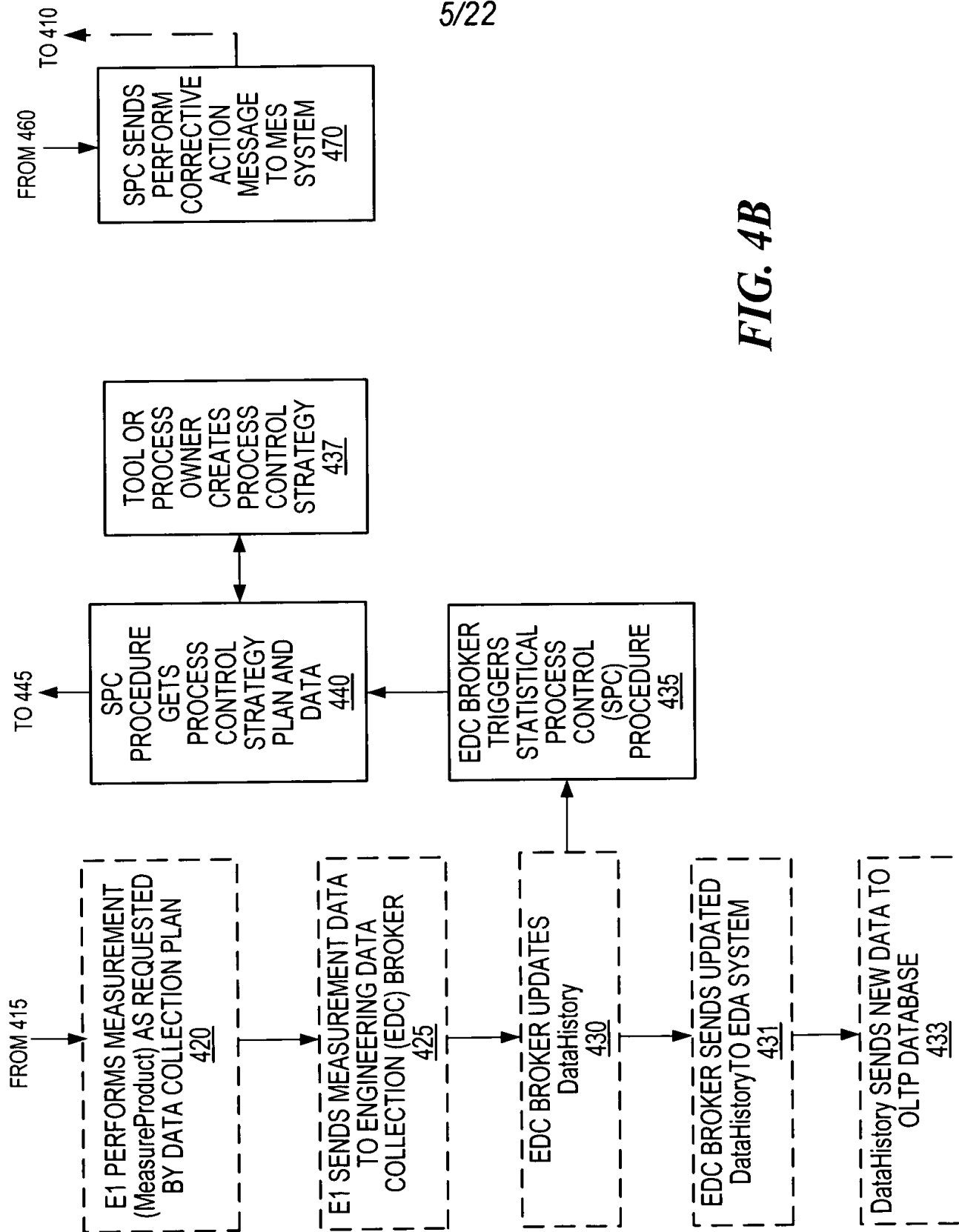
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FIG. 4A



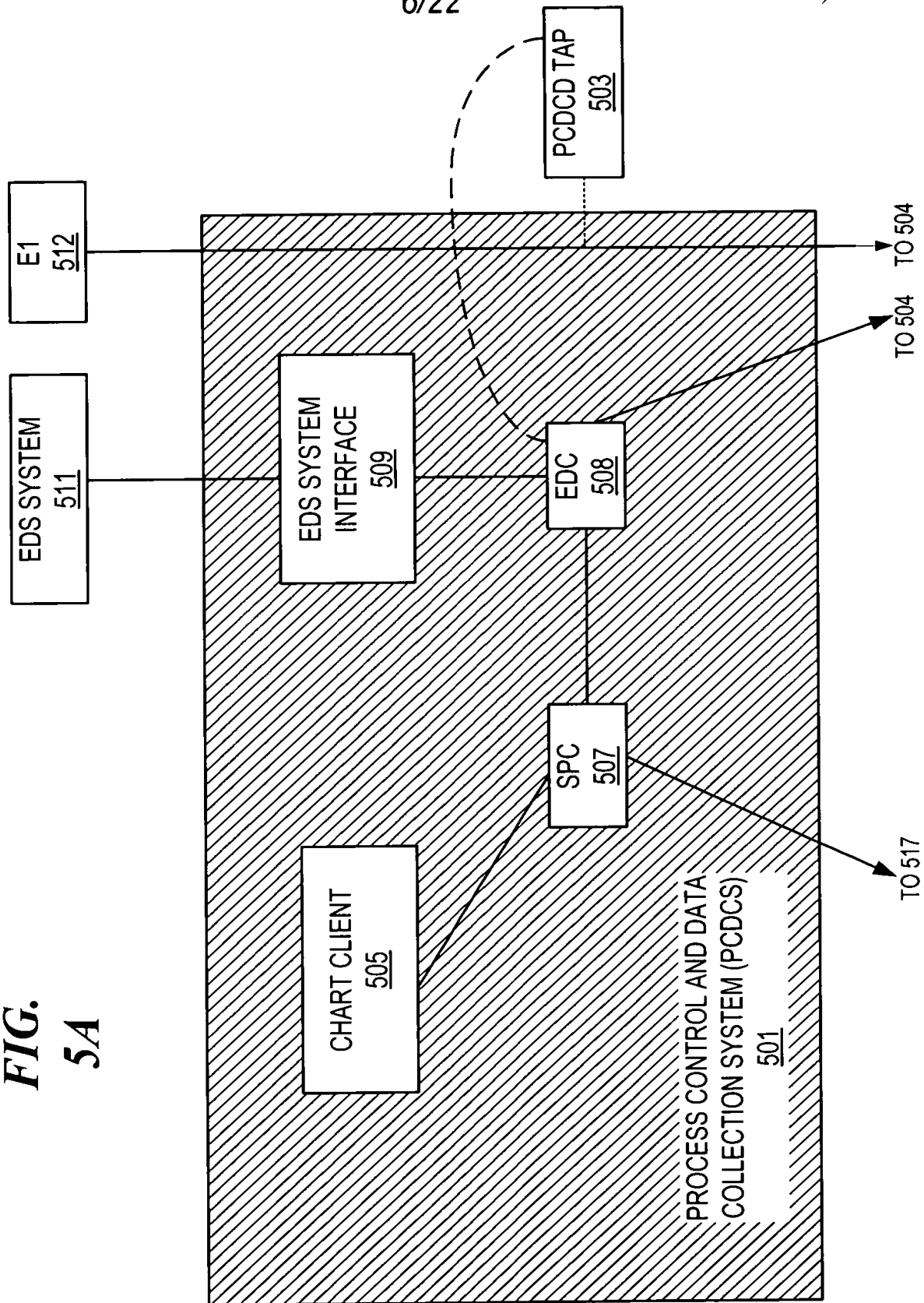


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FIG.
5A





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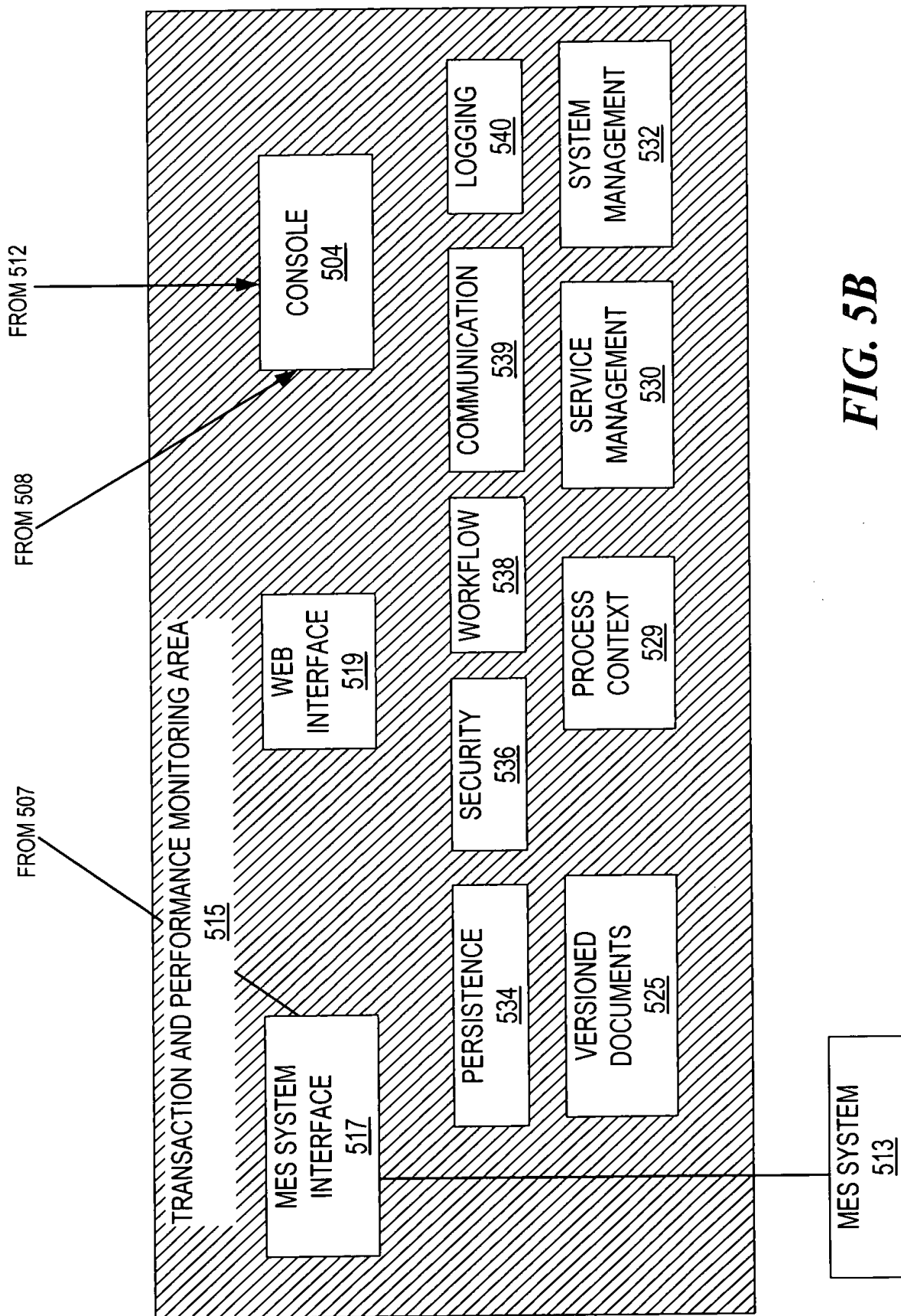


FIG. 5B



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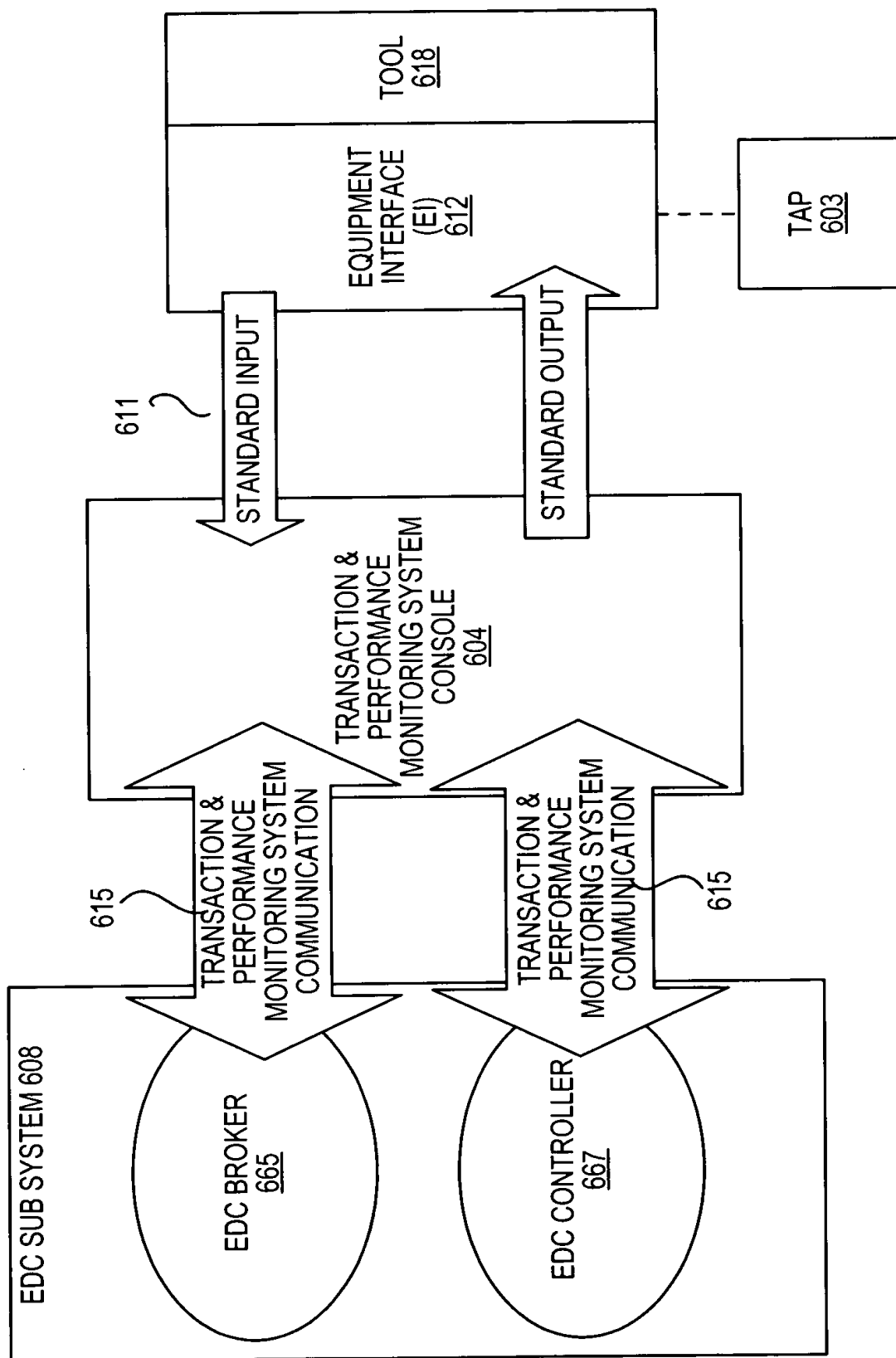


FIG. 6

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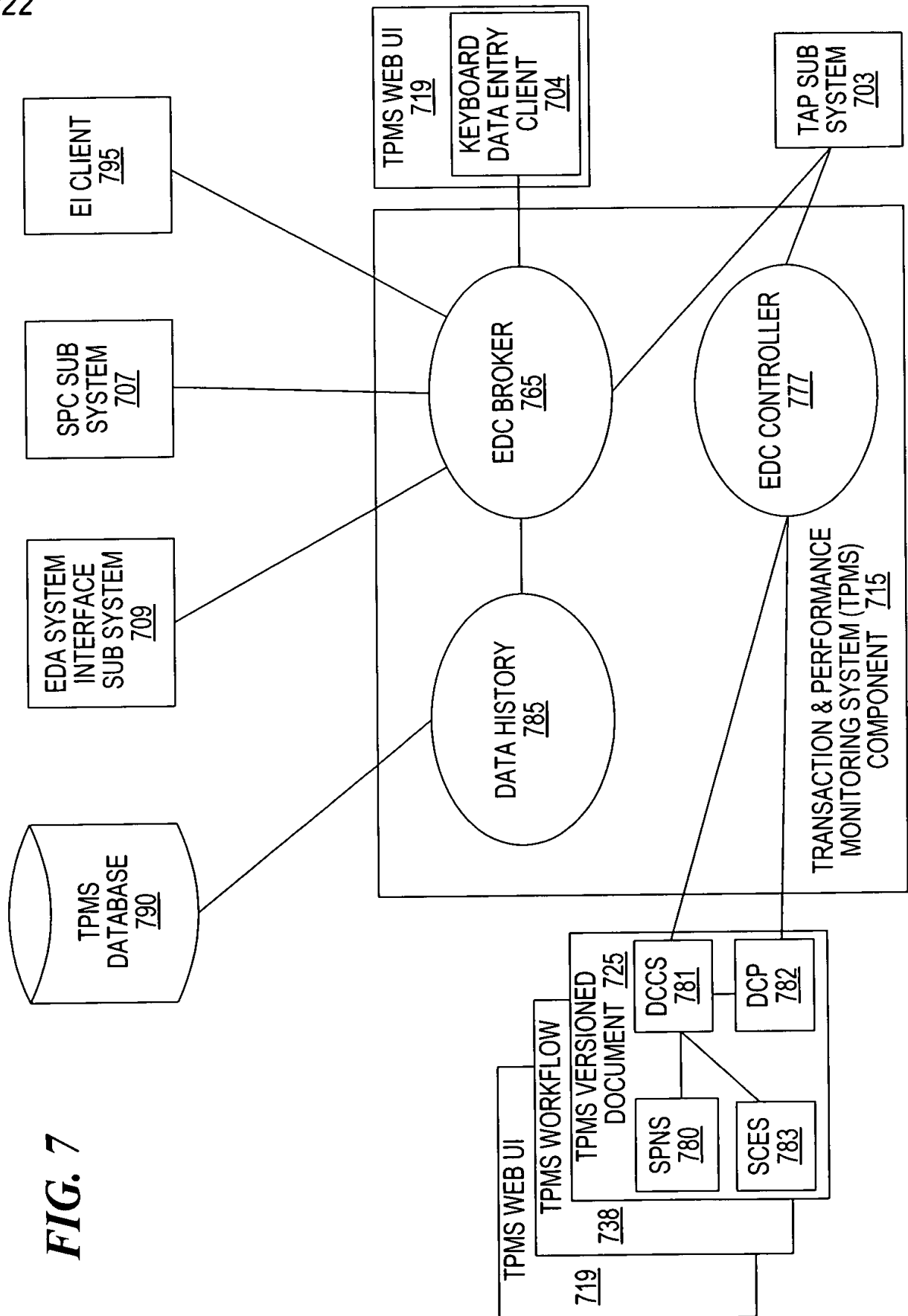


FIG. 7



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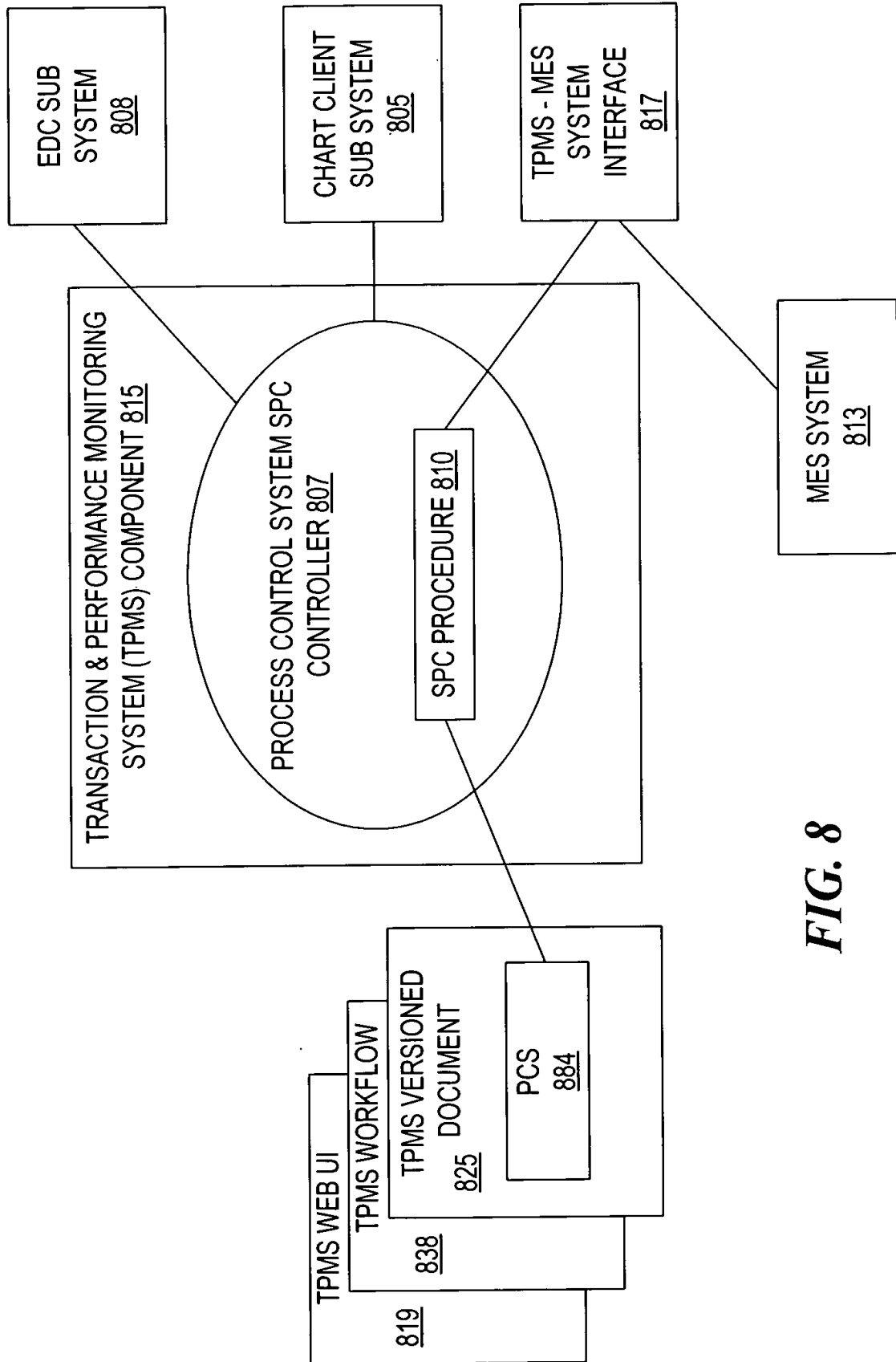


FIG. 8

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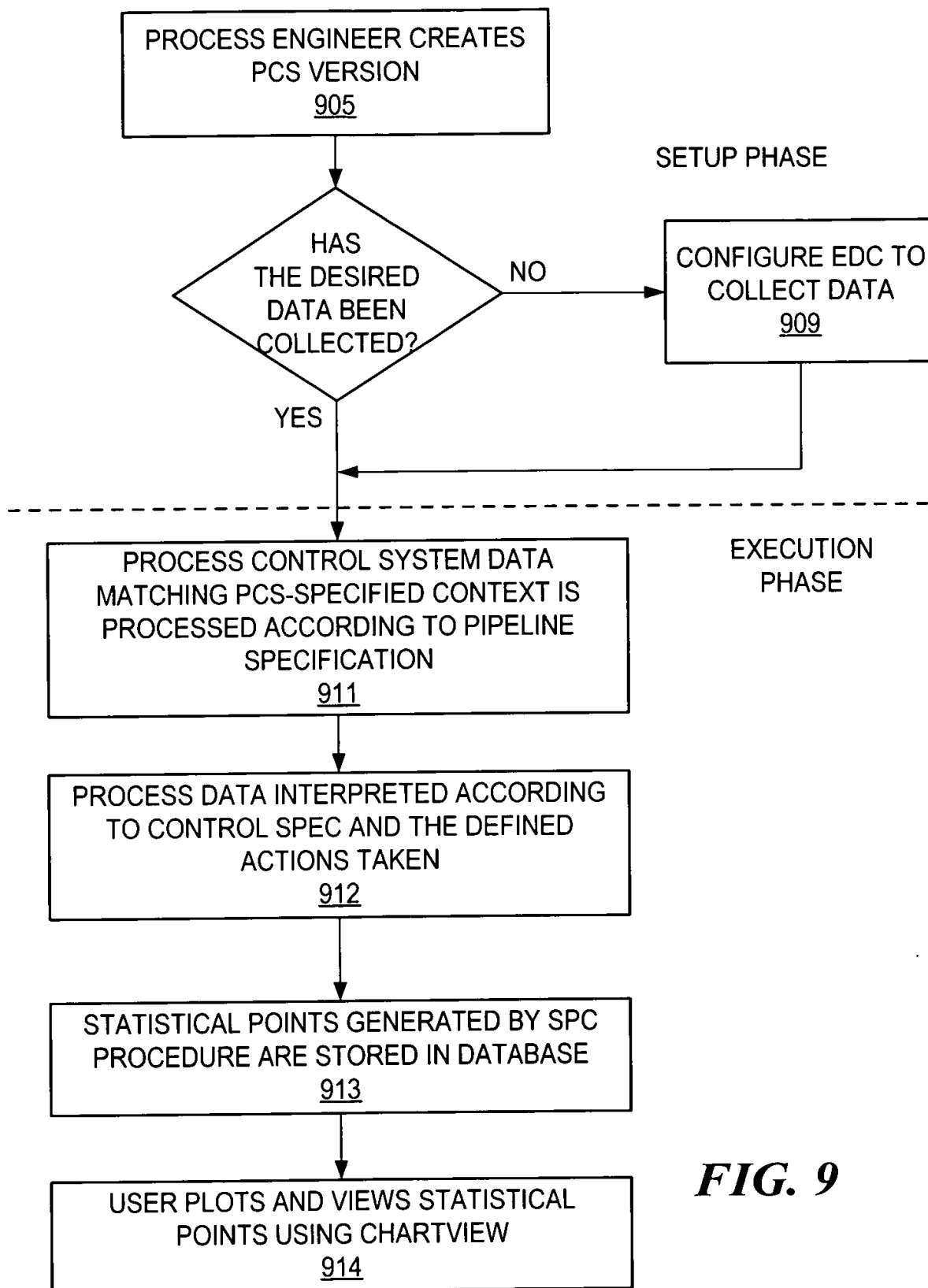


FIG. 9



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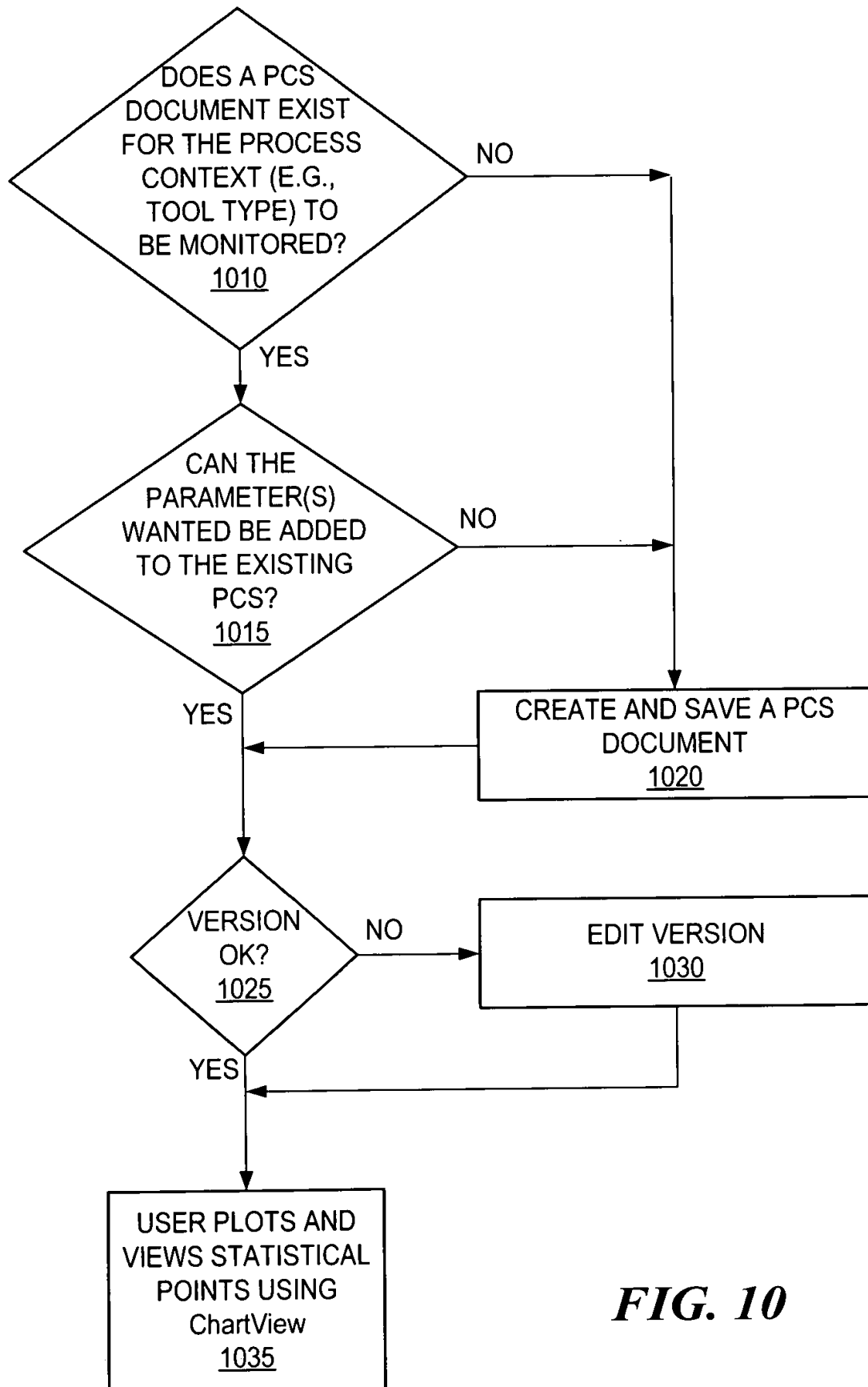


FIG. 10



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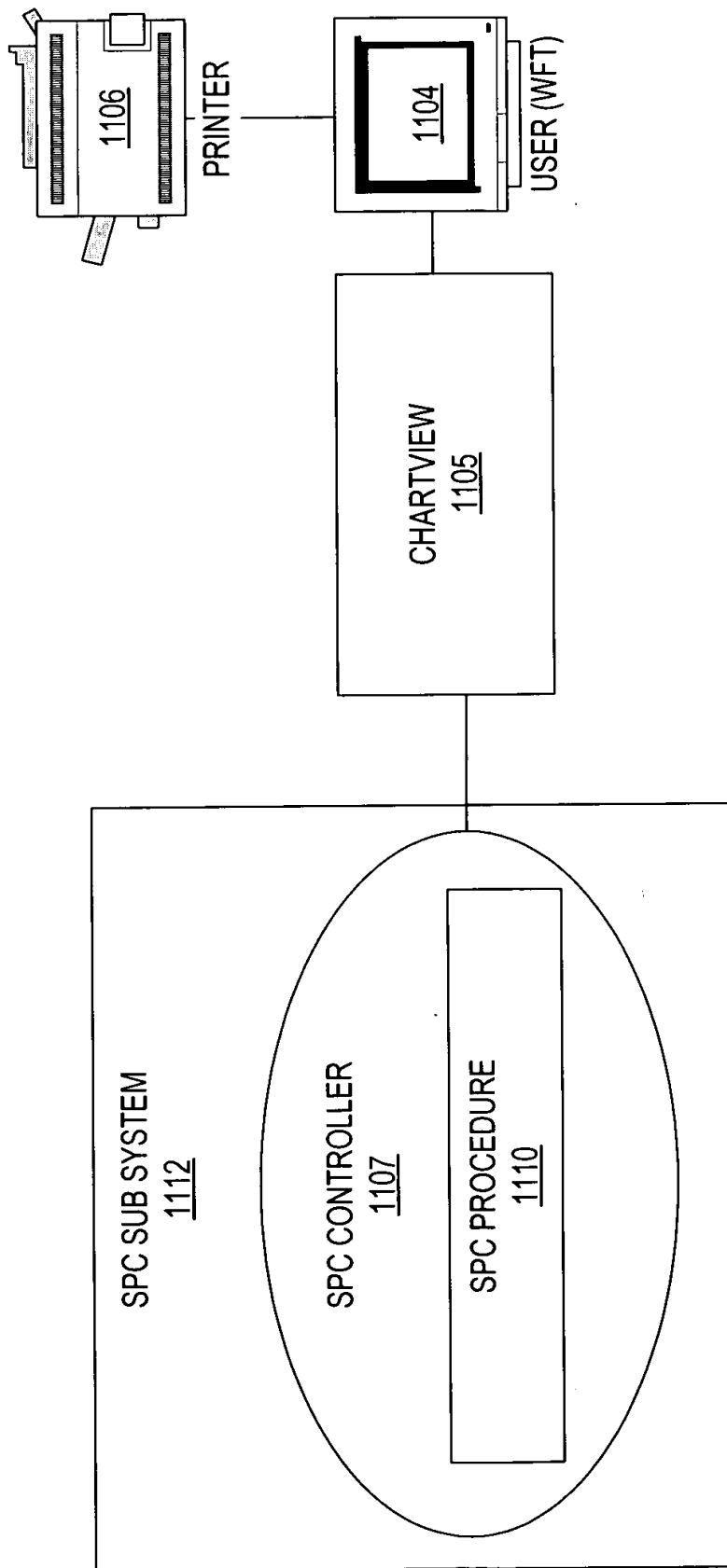


FIG. 11



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FIG. 12

1200

X CHART NAVIGATOR

MODULE
ETCH

1210

NUMBER OF RUNS TO DISPLAY
100

1215

CHARTS:
NORMALIZED MULTILEVEL FICD
SIMPLE PCS
MULTILAYER NORMALIZED PCS BY GROUP
DO NOT DELETE THIS TIME GRR
PRE_POST DEEP PIPELINE PCS

1205

OK

1217

CANCEL

1218

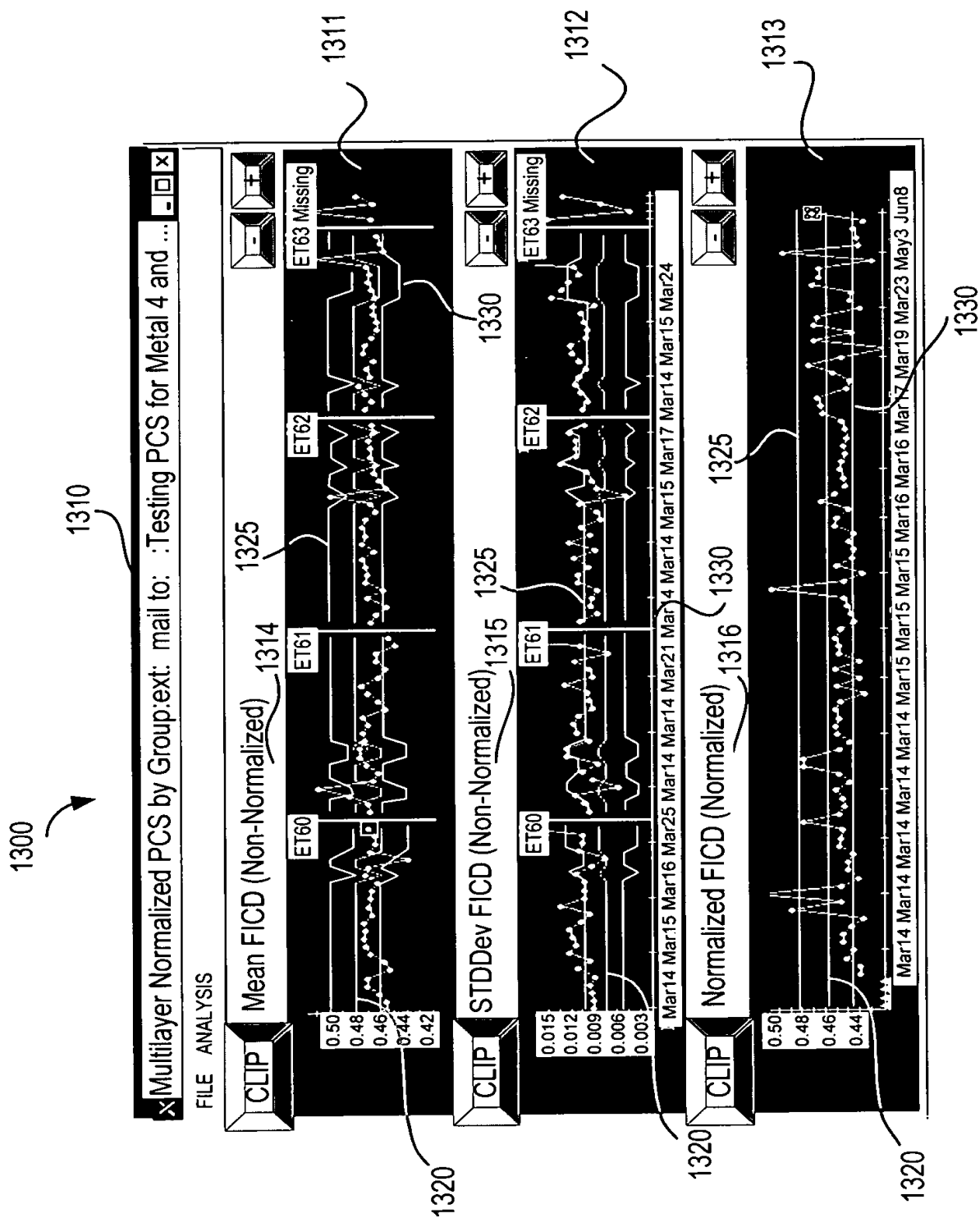


FIG. 13



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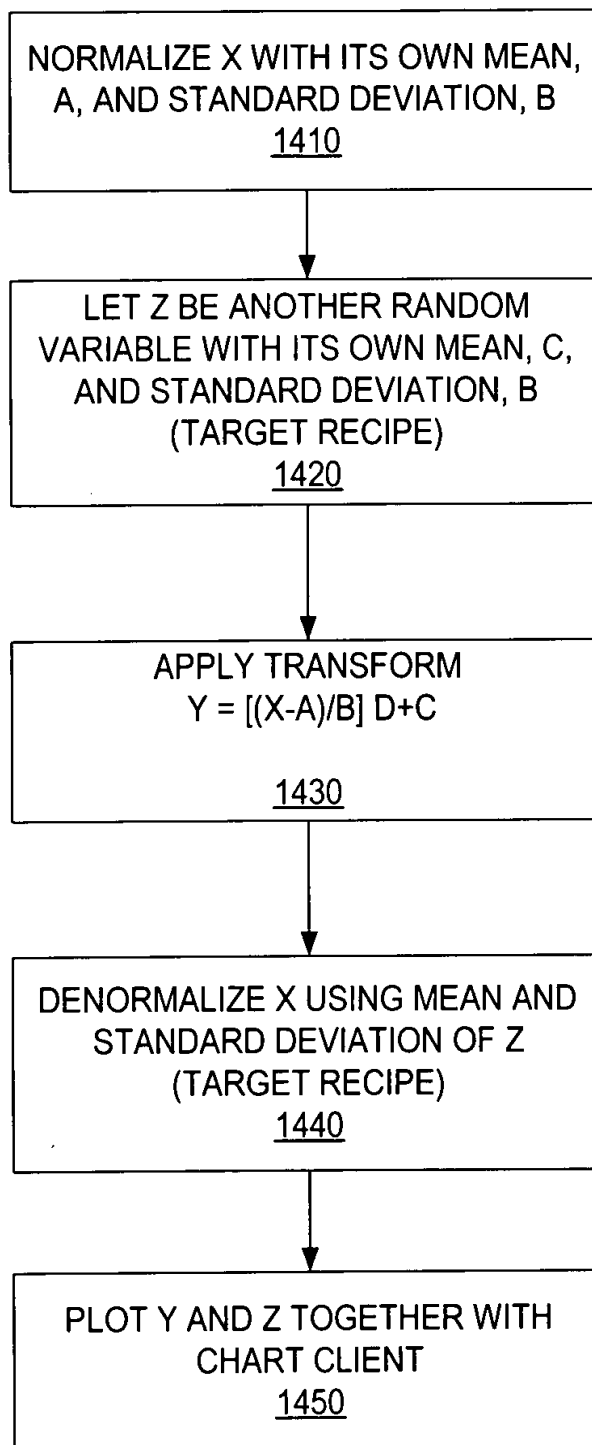


FIG. 14



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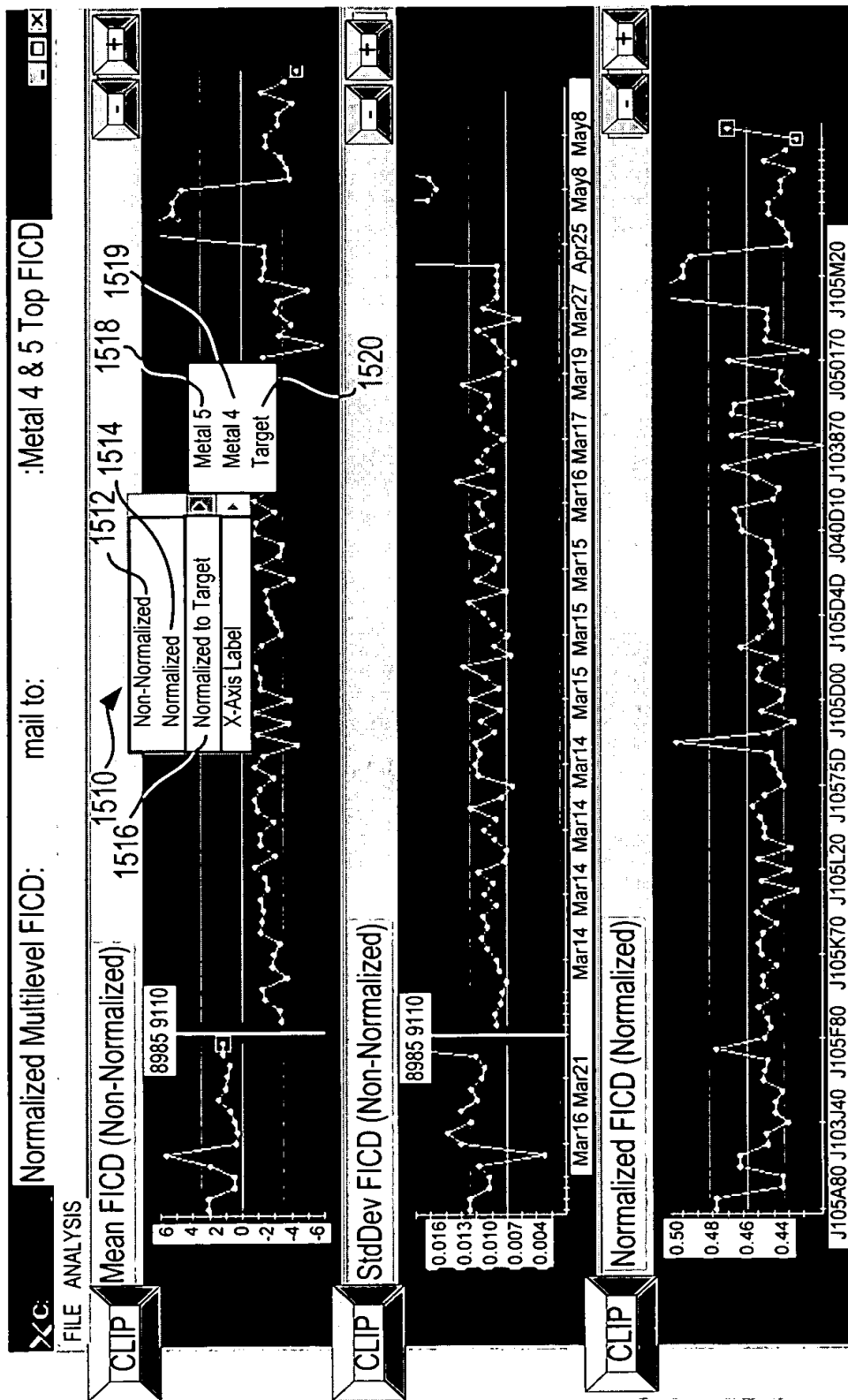


FIG. 15



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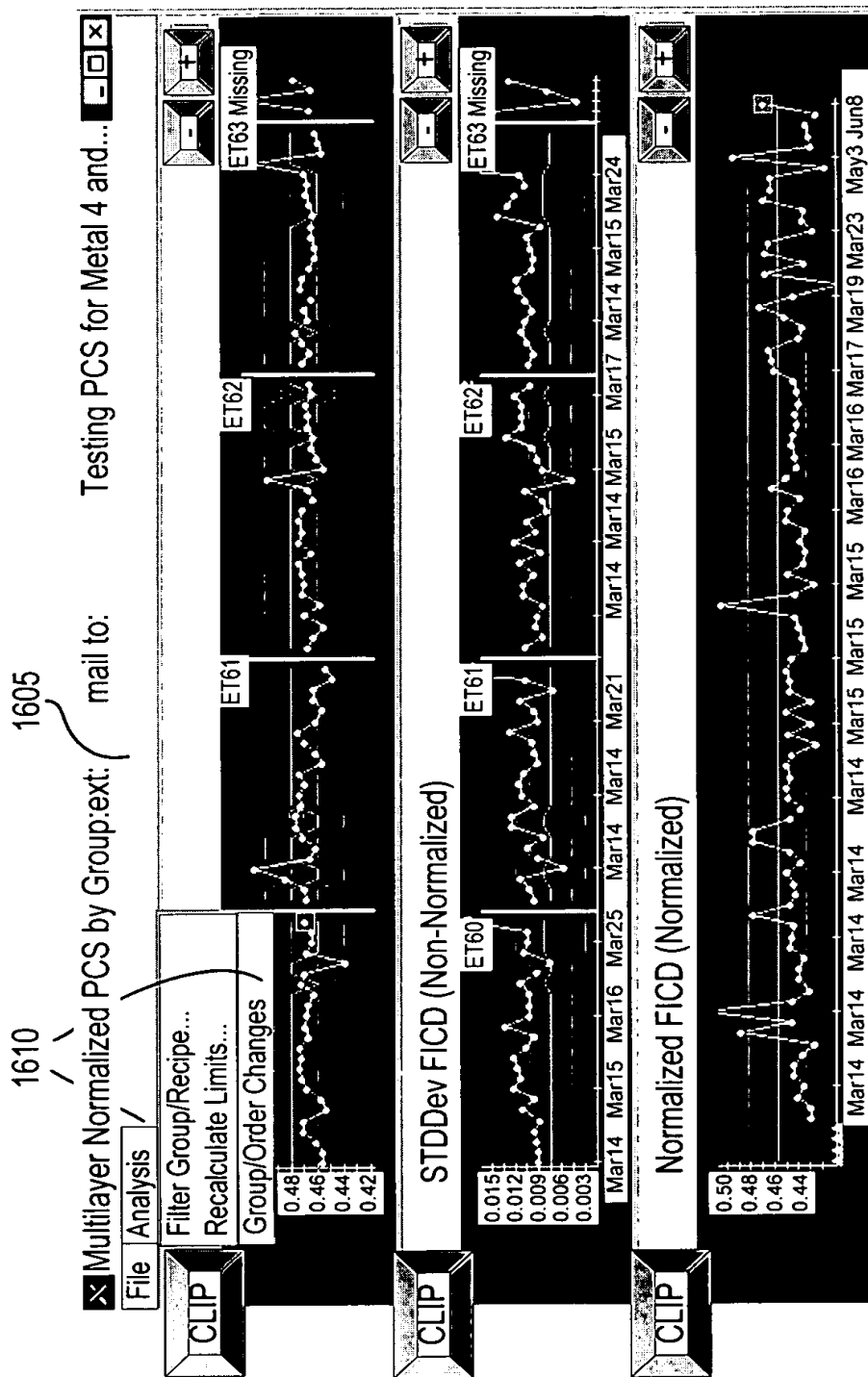


FIG. 16



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1705 X ALTER GROUPING, ORDERING

1706 STATISTIC

1707 MEAN FICD

1708 STDDEV FICD

1708 NORMALIZED FICD

1715

1720

GROUP BY

ORDER BY

1710

1725

1730

GO

CANCEL

PROCESS TIME

PROCESS TIME

PROCESS TIME

PROCESS TOOL

PROCESS TOOL

NONE

LINKED

☒

☒

☒

PROCESS TIME

PROCESS TIME

PROCESS TIME

PROCESS TOOL

PROCESS TOOL

NONE

GO

CANCEL

FIG. 17



1811

1810

1812

1814

1816

1800

1820

1821

FIG. 18

X GRAPHPOINT DETAIL WINDOW

GENERAL INFORMATION SCF

GENERAL

VALUE: 0.524400
UCL: 0.5
TARGET: 0.48
LCL: 0.46
PCS RECIPE: METAL 5
RUNLD: 106537
OOC VIOLATION: ONE OUT ABOVE [WE CONTROL RULES]

ATTRIBUTES	VALUE
LOT	J105M20
OPERATION	9110
PRODUCT	6308AC
MEASUREMENT TIME	2001-04-25 13:32:04
OPAL	C012
BATCH	

OUT-OF-CONTROL ACTIONS

ACTION	CORRECT	MESSAGE
SHUTDOWN TOOL	BRING BACK TOOL	
HOLD LOT	RELEASE LOT	
EMAIL		

1825

ANNOTATION HISTORY

TIME	CREATOR	ANNOTATION
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DONE

ADD



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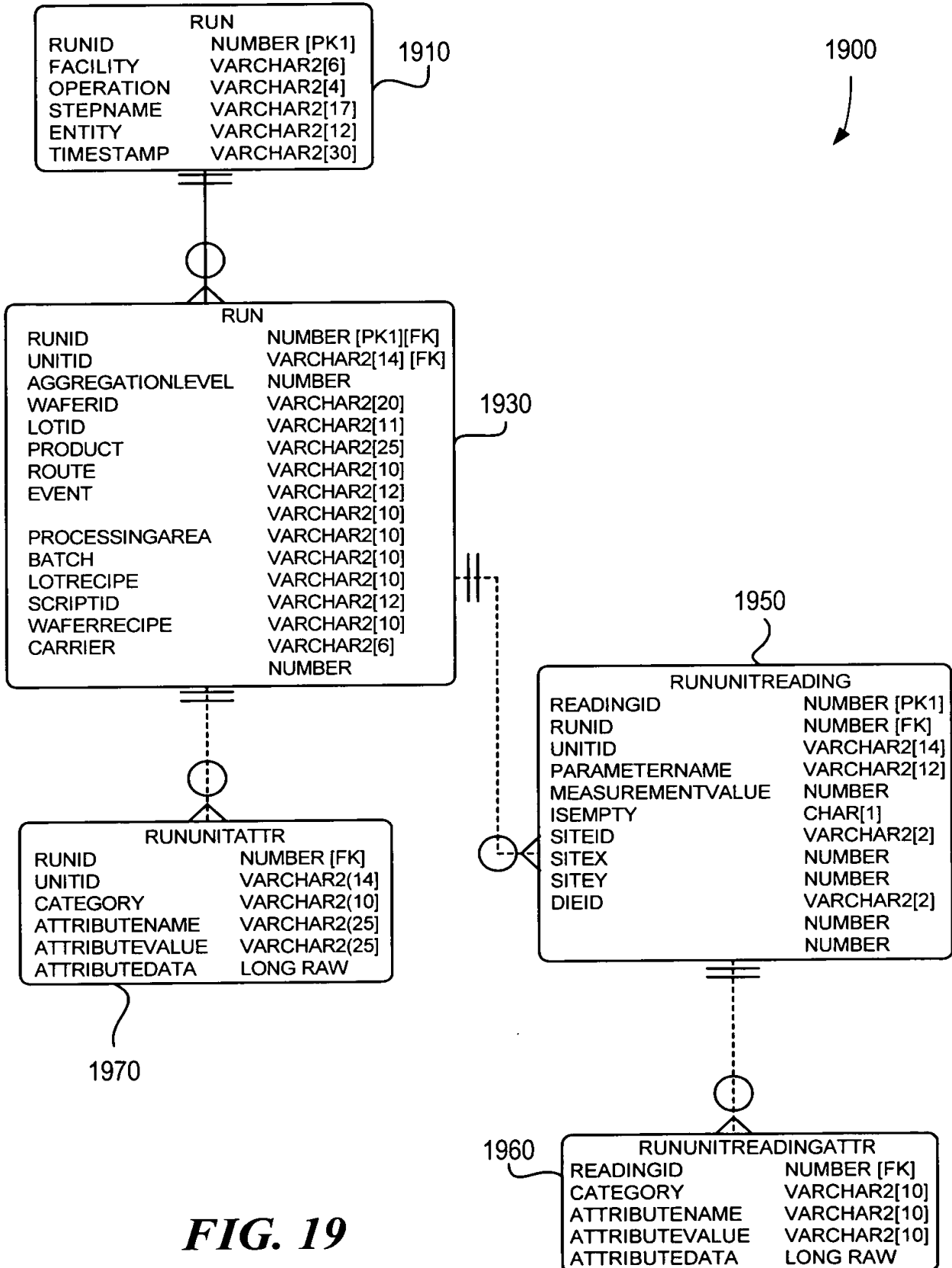


FIG. 19



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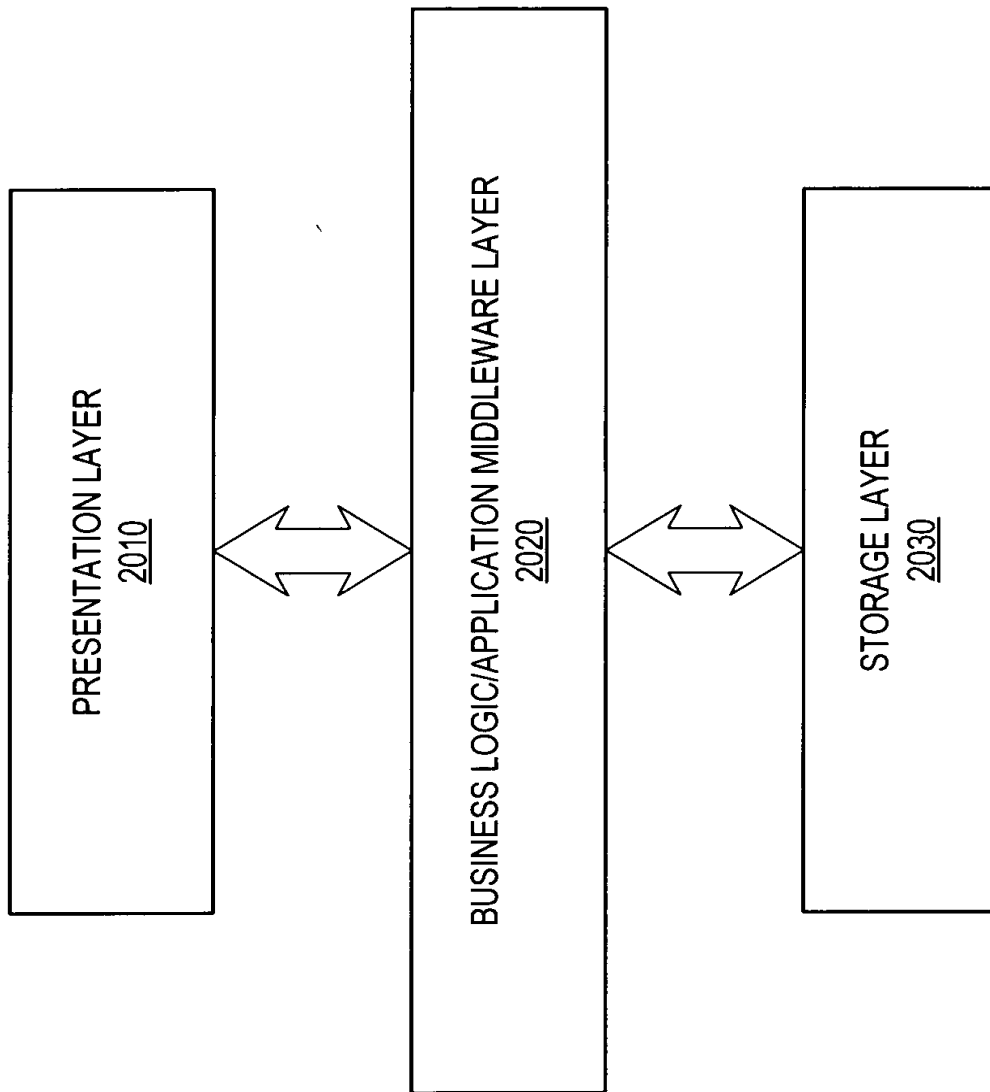


FIG. 20